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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,698	10/16/2003	Hideo Ohara	43888-280	6765

7590 08/14/2006

MCDERMOTT, WILL & EMERY  
600 13th Street, N.W.  
WASHINGTON, DC 20005-3096

EXAMINER
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BELL, BRUCE F

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 08/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/685,698	Applicant(s) OHARA ET AL.	
	Examiner Bruce F. Bell	Art Unit 1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/26/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6, 8, 9, 12, 14, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Washington et al (5750281).

Washington et al disclose an edge manifold assembly that introduces and receives reactant and coolant streams to and from an electrochemical fuel cell stack. The assembly comprises a plurality of manifold plates. See abstract. The manifold plates are preferably formed from a moldable, electrically insulating material, such as a thermoset or thermoplastic material with electrically insulating properties. See col. 6, line 64 – col. 7, line 2. The edge manifold plates are attached to the outer perimeter of the fuel cells. See col. 6, lines 37-39. Each of the edge manifold plates includes interior manifold openings for conducting the reactant and coolant streams and channels for effecting fluid communication between the interior manifold openings and the fuel cell to which the manifold plate is attached. See col. 6, lines 50-54. A notched portion extends from the oppositely facing surface of an edge manifold plate. The notched portion extends into the recessed portion of the adjacent manifold plate when assembled and a sealing gasket is disposed within the recessed portion of each of the edge manifold plates such that the notched portion of the adjacent manifold plate compresses the

sealing gaskets. See col. 6, lines 58-65. The edge manifold plate has a fuel manifold opening, an oxidant manifold opening and a cooling manifold opening formed therein. Alignment openings are also formed in the edge manifold plate. See col. 7, lines 46-55. The preferred adhesive to use between the edge manifold plate and the flow plate is an adhesive having high strength and favorable high temperature characteristics such as an epoxy compound. See col. 8, lines 54-56. Figures 20 and 21 show a fluid flow field plate with four noncontiguous edge manifold plates attached thereto along four sides. Each manifold plate has a pair of interior manifold openings formed therein for conducting the reactant and coolant streams introduced to and exhausted from the adjacent fuel cell stack. Each edge manifold plate has channels formed therein for effecting fluid communication between the manifold openings and flow channels in the flow field plate. See col. 10, lines 12-24.

The prior art of Washington et al anticipates the instant invention as set forth by way of the disclosure above. Applicant uses the term integrated, which the prior art of Washington et al meets, since integrated means to be associated with. Since Washington et al uses an adhesive to seal the components of their instant invention together, the entire structure is integrated. The manner in which the components are formed is given little or no patentable weight in an apparatus claim, since the final product would be the same. The third portion recited in the instant claims appears to be the adhesive material and since the prior art of Washington et al recites the use of an adhesive between the manifold plates and the flow field plates, it appears that this aspect of the instant invention has been found.

Therefore, the prior art of Washington et al anticipates the applicants instant claims, as shown by way of the disclosure above.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 6-10 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Middelman et al (WO 01/80339 A).

Middelman et al disclose a flow field plate made of an electrically conductive material, the edges around the active area are preferably non-conductive to electric current. The polymer used in the non-conducting edges can be a non-filled polymer or a filled polymer, like a fiber reinforced injection molding compound. See page 4, lines 6-9. The plates are manufactured by inserting a perform into a compression mold, or an injection mold, wherein the mold is closed, to form a plate with cooling channels. The plate is provided with a non-conductive edge. See plate in Figures 7 and 8. See page 4, lines 23-28. The flow plates are formed by thermal weld. See example 2 and figures 7-10. The electrically conductive portion and the non-conductive portion can be injection molded in the same mold in the same cycle. See page 4, lines 26-29. The electronic conductor portion is a mixture of a polymer and a graphite powder with optionally additives. See page 2, lines 16-18. The document further discloses the use of

thermoplastic materials since they have the advantage of having better sealing properties. See page 4, lines 14-16.

The prior art of Middelman et al anticipates the applicants instant invention as shown by way of the disclosure above.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 6-13, 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanemoto et al (EP 1020941 A).

Tanemoto et al disclose a separator for a fuel cell having a conductive collector portion and a manifold portion. The collector portion is electrically conductive and includes channels for flowing reactive gas through the channels. The manifold portion includes gas introduction holes connected to the channels of the collector portion and surrounds a circumferential edge portion of the collector portion to be integrated with the collector portion. The collector portion contains a resin binder and the manifold portion contains a composition different from that of the collector portion. See abstract. A separator for a fuel cell having an electrically conductive property and being constituted by a collector portion provided with channels formed for making reactive gas flow through the channels and a manifold portion having a composition different from that of the collector portion and provided with reactive gas introduction holes connected to the

Art Unit: 1746

channels, the manifold portion being integrated with the collector portion so that a circumferential edge portion of the collector portion is surrounded by the manifold portion wherein the collector portion contains a resin binder. See paragraph [0032]. Integrating of the manifold portion with the collector portion by injection molding a manifold portion forming material of a composition different from that of the collector portion in the condition that the collector portion is disposed in a mold is taught. See paragraph [0033]. The collector portion being formed from a resin material which is mixed with a large amount of an electrically conductive filler so that the resin material has a high electrically conductive property at the sacrifice of gas-tightness, dimensional stability and mechanical strength is taught. The manifold portion is formed from a resin material which is mixed with a small amount of the electrically conductive filler or contains no electrically conductive filler so that the resin material has gas-tightness, dimensional stability and mechanical strength is taught. See paragraphs [0036-0037]. The peripheral edge portion of the separator requires a sealing property to prevent gases from leaking out of the cells. The edge portion requires high mechanical strength and high dimensional stability and requires physical properties of gas impermeability. See paragraphs [0042-0045]. Channels are formed in both surfaces of the collector portion so that fuel gas and oxidizer gas are made to flow through the channels. Resins useful as a binder are disclosed to be a phenol resin, epoxy resin, polyimide resin, a liquid crystal polyester resin or the like. See paragraphs [0048-0050].

The prior art of Tanemoto et al anticipates the applicants instant invention as shown by way of the disclosure above. The recitation in instant claim 11 with respect to


the resin being a polyphenylene sulfide has been met since the document discloses the use of phenol resins being known to be used in such collector plates.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruce F. Bell whose telephone number is 571-272-1296. The examiner can normally be reached on Monday-Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BFB  
August 7, 2006

  
Bruce F. Bell  
Primary Examiner  
Art Unit 1746